



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 31 1988

OFFICE OF
SOLID WASTE AND EMERGENCY

MEMORANDUM

SUBJECT: Ground-Water Monitoring at Clean-Closing Surface
Impoundment and Waste Pile Units

FROM: J. Winston Porter
Assistant Administrator

TO: Regional Administrators
Regions I-X

Several provisions of HSWA have made it necessary or desirable for a number of owners or operators to close their land disposal units. Many of these units are going through "clean closure"; that is, removal of all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate. Several Regions have questioned whether a clean closure demonstration requires ground-water monitoring before the unit is declared clean for the purposes of closure under sections 264.228(a), 264.258(a), 265.228(a), or 265.258(a). The purpose of this memo is to reiterate and clarify Agency policy in this regard.

It has been the Agency's policy for some time that owners and operators must not be allowed to "walk away" from units with inadequate ground-water monitoring systems or with ground-water contamination at closure. This policy has been described in my August 27, 1985 memorandum regarding RCRA policies on ground-water quality at closure, in the FY 1987 and 1988 RCRA Implementation Plans (RIP), and in the clean closure policy outlined in the preamble to the final "conforming changes" rule concerning clean closure of surface impoundments, published in the Federal Register on March 19, 1987 (52 FR 8784). If an adequate ground-water monitoring system is in place, it is still the Agency's policy that as part of the clean closure certification process EPA must review ground-water monitoring data to verify that there is no ground-water contamination from the unit(s).

There exists, however, a universe of land disposal units that may not have a ground-water monitoring system, or may have an inadequate ground-water monitoring system in place at closure. These include interim status waste piles, interim status surface impoundments that contain corrosive-only hazardous waste that are eligible for a waiver under section 265.90(e), interim status units exempted from ground-water monitoring on the basis of the self-implemented waiver found in section 265.90(c), or units simply failing to comply with the Subpart F requirements.

Many of these units have already closed by removing waste and certifying "clean closure" without assuring clean ground water. Congress has made it clear that ground-water contamination at treatment, storage, and disposal units must be addressed. Section 3005(i) of RCRA requires all units receiving hazardous waste after July 26, 1982 to comply with ground-water monitoring standards established under Section 3004, regardless of their current active or inactive status. Any closed interim status unit covered under Section 3005(i) that does not meet the 40 CFR 264 clean-closure standard must be issued a post-closure permit implementing the appropriate Subpart F program. In order to avoid post-closure permit responsibilities, interim status facilities that have "clean closed" will need to present evidence that the "clean closure" is in compliance with the Agency's clean-closure rules found in sections 264.228 and 264.258. (This position is clearly presented in the Final Codification Rule, 52 FR 45788, December 1, 1987). Reexamination of all prior clean closures should be performed as suggested by the 1988 RIP and in concert with individual Regional priorities.

We recognize, however, that under certain circumstances for units that "clean-closed" under interim status a demonstration that ground water is uncontaminated might be made without a ground-water monitoring system in place. In order to preclude the need for ground-water monitoring at a clean closing unit the owner or operator would need to meet the decontamination standard as codified in section 270.1(c)(5) and (6) and make a demonstration in accordance with applicable waiver requirements found in section 264.90(b)(4). For clean-closing units at least the following criteria would need to be met to assure compliance with the general closure performance standard (section 264.111):

- 1) Accurate historical data on wastes handled at the unit have been carefully recorded, including a complete analysis of waste composition and characteristics;
- 2) The properties of the waste constituents together with the geochemical environment of the soils show no potential for migration to ground-water during the active life and any post-closure care period; and

- 3) Other supportive data (e.g., an alternative monitoring system or other geophysical verification) needed to ensure protection of human health and the environment.

We recognize that these criteria for not requiring ground-water monitoring are stringent. However, these restrictions are necessary because the Part 264 clean-closure demonstration may ultimately relieve the owner or operator of any further Subtitle C responsibilities at the closing unit or facility.

For those units authorized to operate under Section 3005(e) that stopped receiving waste prior to July 26, 1982, several tools exist for obtaining confirming data. Where the Administrator has determined, based on any information, that there has been a release of hazardous waste (or hazardous waste constituents) from a facility into the environment, Section 3008(h) may be used to perform studies (including ground-water monitoring) and/or corrective measures, as necessary to protect human health or the environment.

Where imminent and substantial endangerment can be established, studies and corrective measures can be required under Section 7003. Section 3013 could be used to collect data and to implement ground-water monitoring, where the presence or the release of hazardous waste "may present substantial hazard" to human health or the environment.

Where a permit for the facility is otherwise required, corrective action (including ground-water monitoring) for improperly "clean closed" units may be effected under Section 3004(u) during the permit process. In cases where an adequate ground-water monitoring system has not been installed and there is no valid ground-water monitoring waiver, and/or where other Subtitle C requirements have been violated, attempts at clean closure, whether successful or not, should not preclude the imposition of enforcement authorities, for example under Section 3008(a) to obtain remedies and/or penalties under Section 3008(g).

~~Should~~ you have any questions regarding the content of this memorandum, please contact Chris Rhyne of my staff at FTS 382-4695.

cc: Waste Management Division Directors, Regions I-X
RCRA Branch Chiefs, Regions I-X
Permit Section Chiefs, Regions I-X
Enforcement Section Chiefs, Regions I-X



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10
SEATTLE, WASHINGTON 98101

MAY 23 1989

REPLY TO
ATTN: GP

MEMORANDUM

SUBJECT: Guidance on Demonstrating Equivalence of Part 265 Clean Closures with Part 264 Requirements

FROM: Michael Gearheard, Chief *MGH*
Waste Management Branch

TO: Addressees

Attached please find OSWER Guidance 9476.00-18: Guidance on Demonstrating Equivalence of Part 265 Clean Closures with Part 264 Requirements. This directive provides guidance to regional RCRA permits and compliance staff on the procedures for the review and approval of clean closure equivalency demonstrations for waste piles, surface impoundments and land treatment units and outlines EPA's policy on allowing landfills to demonstrate clean closure. This guidance also describes the contents of an equivalency demonstration and procedures for submittal to EPA.

The pre-1987 Part 265 interim status clean closure requirements differed from the Part 264 requirements in significant ways, and EPA has decided to bring Part 265 clean closure requirements in conformance with Part 264 requirements. This directive provides guidance on reviewing demonstrations for clean closure under the revised standards for clean closure for those RCRA units which had been certified clean closed under the old (prior to 1987) interim status standards (Part 265).

This guidance only covers the RCRA regulated units which (1) received wastes after July 26, 1982 or certified closure after January 26, 1983 and (2) which closed under interim status before December 1, 1987.

As the issue of clean closure has been a source of confusion and conflict within the RCRA program, we hope that this guidance will provide some assistance and clarification.

Attachment

Addressees:

| | | |
|-------------------------------------|------------------------|---------------------|
| cc: Chuck Shenk, WMB (HW-112) | Steve Torok, AOO/J | Jeff Mach, ADEC |
| Betty Wiese, WMB (HW-112) | Diane Soderlund, AOO/A | John Moeller, IDHW |
| Cathy Massimino, WMB (HW-112) | Steve Provant, IOO | Jan Whitworth, ODEQ |
| George Hofer, HWPB (HW-113) | Al Goodman, OOO | Jim Sachet, WDOE |
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| Paul Boys, ESD (ES-098) | | |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 12 1989

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Transmittal Memorandum for RCRA Guidance on
Demonstrating Equivalency of Part 265 Clean
Closures with Part 264 Requirements

FROM: Sylvia Lowrance, Director
Office of Solid Waste *Sylvia Lowrance*

TO: Hazardous Waste Division Directors, Regions I-X

We are transmitting for your use Guidance on Demonstrating Equivalence of Part 265 Clean Closures with Part 264 Requirements. This Policy Directive provides guidance to Regional RCRA permits and enforcement staff on procedures for the review and approval of clean closure equivalency demonstrations, as required by the December 1, 1987, Codification Rule (52 FR 45788). I urge you to distribute this Directive to those members of your staff who will be responsible for reviewing and approving these equivalency demonstrations.

In addition to providing background on the legislative and regulatory history underlying the equivalency demonstration requirement, this Policy Directive outlines the Agency's policy concerning equivalency demonstration information submission requirements. Specifically, we have identified five potential issues that may arise concerning the acceptability of data submitted by owner/operators:

- o Acceptability of previously collected data;
- o Use of existing soil and ground-water sampling data as proxies for missing data;
- o Requirement for full Appendix VIII sampling;
- o Use of data from previously existing ground-water monitoring systems; and
- o Practicability of obtaining new data.

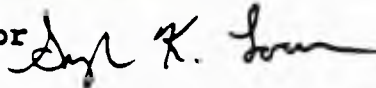
MAY 12 1989

OSWER Policy Directive # 9476.00-18

MEMORANDUM

SUBJECT: Guidance on Demonstrating Equivalence of Part 265 Clean Closure with Part 264 Requirements

FROM: Sylvia Lowrance, Director
Office of Solid Waste



TO: Regions I-X

I. PURPOSE

This memorandum provides guidance to Regional RCRA permits staff concerning the review of Part 264 equivalency demonstrations for interim status surface impoundments and waste piles that certified clean closure under the Part 265 standards prior to March 19, 1987. The Agency discussed the requirements for submitting equivalency demonstrations in the preamble to the December 1, 1987, Codification Rule (52 FR 45788). This memorandum expands upon that discussion by providing further guidance on the Agency's expectations for the review and approval of these demonstrations.

II. AUTHORITY

Section 3005(i) of the Hazardous and Solid Waste Amendments of 1984 (HSWA) requires all landfills, surface impoundments, waste piles, and land treatment units that received waste after July 26, 1982, to comply with the ground-water monitoring, unsaturated zone monitoring, and corrective action requirements applicable to new units. EPA implemented this provision in the December 1, 1987, Codification Rule. 40 CFR Section 270.1(c) requires that units which received waste after July 26, 1982, or which certified closure after January 26, 1983, obtain a post-closure permit unless they successfully demonstrate compliance with the Part 264 requirements for closure by removal.

III. CLEAN CLOSURE REQUIREMENTS UNDER PARTS 264 AND 265

Prior to March 19, 1987, the Part 265 regulations governing interim status clean closures differed significantly from the Part 264 requirements pertaining to permitted units. In March of 1987 (52 FR 8704), the Agency issued conforming changes to the Part 265 regulations to bring them into conformance with the Part 264 requirements.

A. Part 264 Clean Closure Requirements

The Part 264 provisions (§§ 264.228 and 264.258) require the owner/operator to "remove or decontaminate all waste residues, contaminated system components (liners, etc.), [and] contaminated

subsoils...." The Agency interprets the terms "remove" and "decontaminate" to mean "...removal of all wastes and liners, and the removal of all leachate and materials contaminated with the waste or leachate (including ground water) that pose a substantial present or potential threat to human health or the environment" (52 FR at 8706). To meet this standard, owner/operators must demonstrate that no Part 261 Appendix VIII constituents remain in the soils, vadose zone, or ground-water above Agency-recommended limits before certifying clean closure.

These Agency-approved limits or factors include water quality standards and criteria, health-based limits based on verified reference doses (RfDs) and Carcinogenic Potency Factors (CPFs), or site-specific Agency-approved health advisories (52 FR at 8706).

When assessing potential exposures to constituents released from the unit, the owner/operator must establish the points of compliance directly at or within the unit boundary for all routes of exposure (surface water contact, ground-water ingestion, inhalation, direct contact, and soil ingestion). In setting these points of compliance, consideration of contaminant attenuation between the unit and potential exposure points is not allowed.

Further discussion of these requirements is provided in the preamble to the March 19, 1987, conforming changes regulation (52 FR 8704), and in a subsequent Notice of Clarification issued on March 28, 1988 (53 FR 9944). Pending the up-coming issuance of the clean closure guidance mentioned in the March 19, 1987, preamble, these two sources provide the fullest interpretation of Agency policy concerning the requirements applicable to units undergoing clean closure.

B. Previous Part 265 Interim Status Clean Closure Requirements

The pre-1987 Part 265 interim status clean closure requirements differed from the Part 264 requirements in several significant ways. First, these standards allowed owner/operators to discontinue removal activities and certify closure if they were able to demonstrate that residuals associated with the unit were no longer hazardous. This provision allowed owner/operators of surface impoundments containing solely characteristic wastes to meet the clean closure standard by demonstrating that wastes no longer exhibit the characteristic that first brought the impoundment under regulatory control. In this situation, owner/operators could have clean closed without evaluating the presence of additional Appendix VIII constituents that could pose a threat to human health or the environment.

Secondly, the interim status ground-water monitoring requirements applicable to these units only required

owner/operators to monitor for indicator parameters and hazardous waste constituents for which a waste was listed. Owner/operators did not have to demonstrate that all Appendix VIII constituents that could pose a threat to human health or the environment had been removed in order to certify clean closure.

Finally, interim status facilities were not required to demonstrate that all releases of Appendix VIII constituents to soils, surface water, air, or ground water posing a threat to human health or the environment had been removed at closure.

IV. EQUIVALENCY DEMONSTRATION INFORMATION REQUIREMENTS

A. General Information Requirements for Equivalency Demonstrations

40 CFR Section 270.1(c) now affords owner/operators who closed under the Part 265 requirements the option of demonstrating that the units had actually been closed in accordance with the Part 264 requirements, by submitting an "equivalency demonstration". This equivalency demonstration is outside the Part B post-closure permit application and review process. The Agency expects owner/operators to submit sufficient information in their equivalency demonstrations to allow the Agency to determine whether the clean closures fully comply with the Part 264 requirements. The Agency does not intend, however, that owner/operators submit the same quantity of information required when submitting full Part B permit applications.

The demonstration submitted by the owner/operator must include, at a minimum, sufficient information for identifying the type and location of the unit, the unit boundaries, the waste that had been managed in the unit, and the extent of waste and soil removal or decontamination undertaken at closure. Relevant ground-water monitoring and soil sampling data should also be submitted to demonstrate that any Appendix VIII constituents originally in the unit and that remain at closure are below levels posing a threat to human health and the environment. These levels are those discussed in the March 28, 1987 preamble, i.e., water quality standards and criteria, health-based limits, carcinogenic potency factors, or ATSDR site-specific Agency-approved advisories (52 FR at 8706).

Owner/operators can submit information demonstrating that the closure certified under Part 265 complies with the Part 264 standards using existing data developed at the time of closure. If insufficient data are available to support this demonstration, owner/operators may collect new data to demonstrate that the Part 265 clean closure meets the Part 264 clean closure requirements that were in effect at the time of closure. If upon review, the Agency determines that the closure does not meet the Part 264 standards, the owner/operator will be required to submit a Part B

permit application containing all the applicable information required in Part 270, including ground-water monitoring information.

B. Acceptability of Specific Information Supporting Equivalency Demonstrations

Five potential issues concerning the acceptability of specific kinds of data used in an equivalency demonstration have been identified. These issues are discussed below.

1. Acceptability of Previously Collected Data

Many facility owner/operators will have generated considerable amounts of data during their original closure activities. To the extent that these data represent the conditions at closure and provide sufficient information to determine compliance with the Part 264 requirements, they may be used to support an equivalency demonstration. Regional staff should evaluate the information for the extent to which it fulfills the requirements of Part 264, and for its overall quality, reliability, and accuracy.

While previously collected data may be used, in many cases owner/operators will need to collect some additional information on hazardous constituents that may remain in the soils, vadose zone, or ground water to demonstrate equivalency.

2. Use of Existing Soil and Ground-Water Sampling Data as Proxies for Missing Data

The Agency believes that in limited cases owner/operators may use existing soil and ground-water sampling data as proxies for missing data. In the first case, soil sampling data can serve as a proxy for ground-water monitoring data when these are not available. In the second case, ground-water monitoring data can be used to demonstrate the acceptability of a soil or vadose zone cleanup. In such cases, the Agency may consider these data when reviewing equivalency demonstrations. For example, some owner/operators may wish to use previously collected soil sampling data as a surrogate for actual ground-water sampling data in order to demonstrate compliance with the Part 264 ground-water clean closure levels, or facility owner/operators may wish to demonstrate that soil contamination was remediated sufficiently by submitting ground-water monitoring data demonstrating no migration of contaminants from the soil. It is more likely that EPA will accept soil sampling data as a proxy for ground-water monitoring data than the converse. One such example of where soil sampling and vadose zone data might be used as a surrogate for ground-water sampling data is in a hydrogeologic setting where the water table is located at

significant depths from the surface or where ground-water monitoring is not feasible.

Demonstrations using soil sampling data will, however, generally require assumptions of contaminant fate and transport in the relevant subsurface media. As stated in the preamble to the March 19, 1987, conforming changes rule, the Agency does not believe it is appropriate to consider assumptions about subsurface attenuation when approving clean closures, given the uncertainty involved in such assumptions and the fact that all further regulatory control ends upon certification of the closure.

3. Requirement for Full Appendix VIII Sampling

The Part 264 clean closure standards require a demonstration that all Appendix VIII constituents originally in the unit have been removed or decontaminated. As with the 40 CFR Section 264.93 monitoring requirements, however, the Agency believes that it may be possible to exclude some hazardous constituents from consideration based on knowledge of past activities at the unit. Equivalency demonstrations that consider all the hazardous constituents that may reasonably be expected to be in or derived from the wastes managed in the unit may be acceptable in lieu of the full list of Appendix VIII constituents.

The Regions may decrease the list of constituents that must be evaluated to the extent that information submitted by the owner/operator is complete relative to the wastes disposed and demonstrates that these constituents could not reasonably be present in environmental media affected by the unit. In evaluating such demonstrations, Regions should also evaluate closely the potential that additional Appendix VIII constituents may be present in the soils or ground water beneath the unit.

4. Use of Data from Previously Existing Ground-Water Monitoring Systems

The Agency will consider equivalency demonstrations based on data from previously existing ground-water monitoring systems provided such ground-water monitoring systems were in compliance with the applicable requirements. At a minimum, such systems must have met the Part 265 Subpart F ground-water monitoring requirements. To the extent that these systems were located, screened, and operated properly to gather representative ground-water information, the Agency believes that they can be used to support an equivalency demonstration. In order to determine whether monitoring systems were in compliance with Part 265, Regions should examine available records and documents, such as old inspection reports, enforcement records, CME reports, or Ground-Water Task Force reports.

5. Practicability of Obtaining New Data

Some facilities will have certified clean closure several years ago, and subsequently may have constructed structures on top of clean closed units, making it difficult to obtain new data for the equivalency demonstration. For example, a building with a concrete floor or wastewater treatment unit constructed on top of a clean closed hazardous waste management unit could obstruct the collection of new sampling data. Collecting new soil or ground-water data at such a site might require either drilling through the concrete floor of the building or using angled drilling techniques.

The Agency recognizes the difficulties associated with data collection in these cases. In reviewing the quantity of such data submitted, the Regions may consider the technical difficulties involved in collecting such data. The standard of protection against which equivalency demonstrations will be evaluated will not, however, be different depending on the technical difficulties of data collection. Accordingly, the Agency will require owner/operators to submit representative existing data and/or to collect those data necessary to demonstrate compliance with the Part 264 requirements.

V. APPLICABILITY TO LANDFILLS

EPA interprets its regulations to allow landfills from which wastes have been removed at closure to accomplish "clean closure" and, if closed under 40 CFR Part 265 standards, to allow an equivalency demonstration to be made under 40 CFR Section 270.1(c)(5) and (6), through redefinition of the landfill as a waste pile, surface impoundment, or land treatment unit. It is most likely that the redefinition, or change in process, will be to a waste pile, pursuant to 40 CFR Section 270.72(c). Clean closures or demonstrations of equivalency with clean closure, are governed by the applicable Part 264 closure requirements (e.g., 40 CFR Section 264.258 for waste piles).

As an alternative to making an equivalency demonstration pursuant to 40 CFR Section 270.1(c)(5), the owner/operator of a landfill from which all waste has been removed and for which the owner/operator can provide evidence that the level of contamination is such that it no longer poses a threat to human health and the environment, may request that the Regional Administrator shorten the post-closure care period [40 CFR Section 264.117(a)(2)(i)]. The term of the post-closure permit should then be modified to a minimal period in accordance with 40 CFR Section 270.42.

VI. CONTENTS OF THE EQUIVALENCY DEMONSTRATION AND PROCEDURES FOR SUBMITTAL

No specific format for an equivalency demonstration is required. For ease of review, the Agency suggests that equivalency demonstrations include three basic sections: 1) a Unit Description, 2) a Description of Closure Activities Conducted, and 3) a Demonstration of Compliance with Clean Closure Levels.

The first section, Unit Description, should provide information on the size and location of the unit, the wastes managed by the unit (EPA hazardous waste numbers and quantities), any liner system and leachate collection system, containment system, and run-on and run-off control systems. In addition, owner/operators should present a description of the hydrogeology of the immediate area, including descriptions of ground-water and soil conditions, ground-water monitoring systems, detection programs, and any corrective action activities undertaken. For land treatment units, information concerning application rates should also be included.

The second section, the Description of Closure Activities Conducted, must identify, in detail, all removal and decontamination activities completed at the unit during closure. This description should include information on the quantity of waste removed (by waste type), the quantity of leachates and contaminated containment liquids removed, the quantity of bottom sludges/residues removed, the quantity of contaminated soil removed, the methods used for removal of inventory (i.e., waste, sludge, residue, liquid, and soil), and the procedures used for decontaminating and/or disposing of inventory. Specifically, the description of the decontamination and disposal activities should identify the method of decontamination of equipment/structures, the treatment or disposal of cleaning agents/rinsewater, and the demolition and removal of containment systems (e.g., liners, dikes) and other equipment/structures.

The previously approved closure plan should provide the majority of the descriptive material required for sections 1 and 2 of the demonstration. The owner/operator should not assume that the closure plan has been retained by the Agency; relevant portions of the plan should be resubmitted. A copy of the closure certification should also be provided.

The third section, Demonstration of Compliance with Clean Closure Levels, should present sampling data supporting the owner/operator's equivalency demonstration. This section should specify where samples were taken in each relevant medium, when the samples were taken, what parameters were examined, and the analytical results. The information should specify the sampling protocols and analytical methods used during the sampling

activities, along with available quality assurance/quality control information. The raw sampling data should be presented in an appendix to the report, while the results should be summarized in a clear manner in the body of the report. In cases where surrogates or proxies are proposed for use, the owner/operator should fully explain the reason for the use of such proxies and any analytic assumptions which were made. Where data from all Appendix VIII constituents are not submitted, section 2 of the submission should support the assertion that such constituents were not and are not present in the unit.

Finally, the demonstration should include a narrative discussion summarizing both the results of previously collected data and new data collected for this demonstration. In the conclusion, the section should compare the results of sampling data to the applicable clean closure levels for the relevant parameters.

The December 1, 1987, Codification Rule presented procedures and timeframes for the submittal, review, and approval of equivalency demonstrations. The timeline presented below summarizes the critical dates and activities that must be followed by owner/operators and the Agency upon receipt of an equivalency demonstration.

